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10/721,399	11/25/2003	Francois Baccelli	YOR920030277US1 (8728-634	8078

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EXAMINER	
BOKHARI, SYED M	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/721,399	BACCELLI ET AL.	
	Examiner	Art Unit	
	SYED BOKHARI	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-15 and 18-23* is/are pending in the application.

4a) Of the above claim(s) *6 and 17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-15 and 18-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendment file on February 19th, 2008 has been entered. Claims 1 and 12 have been amended. Claims 4 and 17 have been cancelled. Claim 23 has been added. Claims 1-4, 7-15 and 18-23 are still pending in this application, with claims 1 and 12 being independent.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

   1. Determining the scope and contents of the prior art.
   2. Ascertaining the differences between the prior art and the claims at issue.
   3. Resolving the level of ordinary skill in the pertinent art.
   4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 4, 10, 12-13, 15 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCanne (2003/0088696 A1) in view of Haas et al. (7,035,937 B2).

McCanne discloses a communication system with overlay protocol to route information according to overlay routing table with the following features: regarding claim 1, a computer implemented method for group communication over a network of processors comprising (Fig. 1, overlay router arrangement, see “overlay routing processors” recited in paragraph 0012 line 1-10), determining an overlay spanning tree comprising (Fig. 1, overlay router arrangement, see “source to active receivers” recited in paragraph 0050 line 8-10), an origin node and at least one receiving node (Fig. 1, overlay router arrangement, see “source to active receivers” recited in paragraph 0045 line 1-5), wherein determining the overlay spanning tree comprises defining a target bandwidth for the overlay tree given a fully connected overlay distribution graph (Fig. 1, overlay router arrangement, see “overlay routers with application level knowledge, carry out transformation conditioned on bandwidth constraints” recited in paragraph 0033 line 12-17), constructing a reduced overlay

distribution graph by removing an edge from the fully connected overlay distribution graph having a bandwidth less than or equal to the target bandwidth (Fig. 1, overlay router arrangement, see “improves the routing by reducing the path lengths from a given LVIF that may be connected to external network” recited in paragraph 0065 line 1-13), constructing an arbitrary spanning tree comprising a root, wherein the root is a source node of a plurality of links in the reduced overlay distribution graph (Fig. 1, overlay router arrangement, see “the border router consults only the forwarding information base (FIB) to make forward decision and the source domain is called the root” recited in paragraph 0120 line 21-30), performing a triangular improvement to remove a link violating a rate constraint (Fig. 1, overlay router arrangement, see “by providing the specific feedback as to what rate the plugin can adjust the rate of the flow it manages to fit into its allotment” recited in paragraph 0110 line 1-8), increasing the target bandwidth upon determining that the overlay spanning tree is constructible (Fig. 1, overlay router arrangement, see “the plugin could forward the maximum number of streams that the bandwidth policy permits” recited in 0109 lines 3-9) and decreasing the target bandwidth upon determining that the overlay spanning tree is not constructible (Fig. 1, overlay router arrangement, see “the plugin might perform stream thinning within the network according to bandwidth throughput” recited in 0109 lines 1-3) and controlling a source communication rate between the origin node and at last the one receiving node to be less than or equal to a bottleneck rate of the overlay spanning tree having a selected configuration (Fig. 1, overlay router arrangement, see “flow in a bandwidth managed system” recited in paragraph 0047 lines 1-11); regarding

claim 4, further comprising scaling the overlay spanning tree to an arbitrary group size (Fig. 2, processing and management, see “multipoint infrastructure transport protocol” recited in paragraph 0049 lines 7-10 and paragraph 0050 lines 1-7); regarding claim 12, a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform (Fig. 1, overlay router arrangement, see “overlay routing processors” recited in 0012 line 1-4), method steps for group communication over a network of processors, the method steps comprising: determining an overlay spanning tree comprising (Fig. 1, overlay router arrangement, see “instruction for overlay group” recited in 0012 line 4-10), determining an overlay spanning tree comprising (Fig. 1, overlay router arrangement, see “source to active receivers” recited in paragraph 0050 line 8-10), an origin node and at least one receiving node (Fig. 1, overlay router arrangement, see “source to active receivers” recited in paragraph 0045 line 1-5) wherein determining the overlay spanning tree comprises defining a target bandwidth for the overlay tree given a fully connected overlay distribution graph (Fig. 1, overlay router arrangement, see “overlay routers with application level knowledge, carry out transformation conditioned on bandwidth constraints” recited in paragraph 0033 line 12-17), constructing a reduced overlay distribution graph by removing an edge from the fully connected overlay distribution graph having a bandwidth less than or equal to the target bandwidth (Fig. 1, overlay router arrangement, see “improves the routing by reducing the path lengths from a given LVIF that may be connected to external network” recited in paragraph 0065 line

1-13), constructing an arbitrary spanning tree comprising a root, wherein the root is a source node of a plurality of links in the reduced overlay distribution graph (Fig. 1, overlay router arrangement, see “the border router consults only the forwarding information base (FIB) to make forward decision and the source domain is called the root” recited in paragraph 0120 line 21-30), performing a triangular improvement to remove a link violating a rate constraint (Fig. 1, overlay router arrangement, see “by providing the specific feedback as to what rate the plugin can adjust the rate of the flow it manages to fit into its allotment” recited in paragraph 0110 line 1-8), increasing the target bandwidth upon determining that the overlay spanning tree is constructible (Fig. 1, overlay router arrangement, see “the plugin could forward the maximum number of streams that the bandwidth policy permits” recited in 0109 lines 3-9) and decreasing the target bandwidth upon determining that the overlay spanning tree is not constructible (Fig. 1, overlay router arrangement, see “the plugin might perform stream thinning within the network according to bandwidth throughput” recited in 0109 lines 1-3) and controlling a source communication rate to be less than or equal to a bottleneck rate of the overlay spanning tree (Fig. 1, overlay router arrangement, see “flow in a bandwidth managed system” recited in paragraph 0047 lies 1-11) and regarding claim 15, further comprising scaling the overlay spanning tree to an arbitrary group size (Fig. 2, processing and management, see “multipoint infrastructure transport protocol” recited in paragraph 0049 lines 7-10 and paragraph 0050 lines 1-7).

McCanne does not disclose the following features: regarding claim 1, determining a maximum throughput of the spanning tree among all possible

configurations of the spanning tree given a reduced overlay distribution tree and selecting a configuration of the overlay spanning tree having a maximum throughput; regarding claim 12, determining a maximum throughput of the spanning tree among all possible configurations of the spanning tree given a reduced overlay distribution tree; regarding claim 2, further comprising protecting data delivery by link error recovery; regarding claim 10, further comprising redetermining the spanning tree upon determining that an existing node has left the spanning tree; regarding claim 13, further comprising protecting data delivery by link error recovery and regarding claim 21, further comprising redetermining the spanning tree upon determining that an existing node has left the spanning tree.

Haas et al. discloses a communication system offering independent tree ad hoc multicast routing with the following features: regarding claim 1, determining a maximum throughput of the spanning tree among all possible configurations of the spanning tree given a reduced overlay distribution tree (Fig. 1, spanning tree, see "computing maximally independent trees" recited in column 7 lines 53-60) and selecting a configuration of the overlay spanning tree having a maximum throughput (Fig. 1, spanning tree, see "computing maximally independent trees" recited in column 7 lines 60-67); regarding claim 2, further comprising protecting data delivery by link error recovery (Fig. 1, spanning tree, see "calculate backup trees" recited in column 5 lines 20-31); regarding claim 10, further comprising redetermining the spanning tree upon determining that an existing node has left the spanning tree (Fig. 1, spanning tree, see "computes alternating routing trees or paths" recited in column 2 lines 59-67 and column

3 lines 1-4); regarding claim 12, determining a maximum throughput of the spanning tree among all possible configurations of the spanning tree given a reduced overlay distribution tree (Fig. 1, spanning tree, see “computing maximally independent trees” recited in column 7 lines 53-60); regarding claim 13, further comprising protecting data delivery by link error recovery (Fig. 1, spanning tree, see “calculate backup trees” recited in column 5 lines 20-31) and regarding claim 21, further comprising redetermining the spanning tree upon determining that an existing node has left the spanning tree (Fig. 1, spanning tree, see “computes alternating routing trees or paths” recited in column 2 lines 59-67 and column 3 lines 1-4).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the system of McCanne by using the features, as taught by Haas et al., in order to provide determining a maximum throughput of the spanning tree among all possible configurations of the spanning tree given a reduced overlay distribution tree and selecting a configuration of the overlay spanning tree having a maximum throughput, protecting data delivery by link error recovery and re-determining the spanning tree upon determining that an existing node has left the spanning tree. The motivation of using these functions is to enhance the system in a cost effective manner.

5. Claims 3, 11, 14 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCanne (2003/0088696 A1) in view of Haas et al. (7,035,937 as applied to claims 1 and 12 above, and further in view of Silton et al. (USP 6,327,252).

McCanne and Haas et al. described the claimed limitations as described in paragraph 4 above. McCanne and Haas et al. do not disclose the following features: regarding claim 3, wherein the overlay spanning tree comprises a plurality of nodes and wherein the data delivery is reliable such that each node receives the same data; regarding claim 11, further comprising determining orphaned child nodes of the existing node that has left the spanning tree and performing a join for each orphaned child node; regarding claim 14, wherein the overlay spanning tree comprises a plurality of nodes and wherein the data delivery is reliable such that each node receives the same data and regarding claim 22, determining orphaned child nodes of the existing node that has left the spanning tree and performing a join for each orphaned child node.

Silton et al. discloses a communication system offering automatic link establishment between the distributed servers as members of overlay spanning tree with the following features: regarding claim 3, wherein the overlay spanning tree comprises a plurality of nodes (Fig. 1, distributed network, see “plurality of nodes” recited n column 2 lines 39-55) and wherein the data delivery is reliable such that each node receives the same data (Fig. 1, distributed network, see “shares processing workload” recited in column 2 lines 65-67 and column 3 line 1); regarding claim 11, further comprising: determining orphaned child nodes of the existing node that has left the spanning tree (Fig. 2, spanning tree, see “enters hunt mode” recited in column 3 lines 63-67 and column 4 lines 1-17) and performing a join for each orphaned child node (Fig. 2, spanning tree, see “discovery mode” recited in column 3 lines 19-24 and lines 45-52) ; regarding claim 14, wherein the overlay spanning tree comprises a

plurality of nodes (Fig. 1, distributed network, see “plurality of nodes” recited n column 2 lines 39-55) and wherein the data delivery is reliable such that each node receives the same data (Fig. 1, distributed network, see “shares processing workload” recited n column 2 lines 65-67 and column 3 line 1) and regarding claim 22, determining orphaned child nodes of the existing node that has left the spanning tree (Fig. 2, spanning tree, see “enters hunt mode” recited in column 3 lines 63-67 and column 4 lines 1-17) and performing a join for each orphaned child node (Fig. 2, spanning tree, see “discovery mode” recited in column 3 lines 19-24 and lines 45-52).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the system of McCanne with Haas et al. by using the features, as taught by Silton et al. in order to provide the overlay spanning tree comprises a plurality of nodes and wherein the data delivery is reliable such that each node receives the same data and determining orphaned child nodes of the existing node that has left the spanning tree and performing a join for each orphaned child node.

6. Claims 7-9, 18-20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCanne (2003/0088696 A1) in view of Haas et al. (7,035,937 B2) and in view of Hsu (USP 6,363,319 B1) as applied to claim1 and 8 above, and further in view of Grover et al. (US 2002/0187770 A1).

McCanne and Haas et al. disclose claimed limitations as described in paragraphs 4 above. McCanne also disclose the following features: regarding claim 23, a computer

implemented method for group communication over a network of processors comprising (Fig. 1, overlay router arrangement, see “overlay routing processors” recited in paragraph 0012 line 1-10), determining an overlay spanning tree comprising (Fig. 1, overlay router arrangement, see “source to active receivers” recited in paragraph 0050 line 8-10), an origin node and at least one receiving node comprising (Fig. 1, overlay router arrangement, see “source to active receivers” recited in paragraph 0045 line 1-5) and controlling a source communication rate between the origin node and at last the one receiving node to be less than or equal to a bottleneck rate of the overlay spanning tree having a selected configuration (Fig. 1, overlay router arrangement, see “flow in a bandwidth managed system” recited in paragraph 0047 lines 1-11).

Hass et al. disclose the following features: regarding claim 23, determining a maximum throughput of the overlay spanning tree among all possible configurations of the overlay spanning tree (Fig. 1, spanning tree, see “computing maximally independent trees” recited in column 7 lines 53-60) and selecting a configuration of the overlay spanning tree having the maximum throughput (Fig. 1, spanning tree, see “computing maximally independent trees” recited in column 7 lines 60-67).

McCanne and Haas et al. do not disclose the following features: regarding claim 8, comprising joining the new node to an existing node of the spanning tree and upon determining that the existing node has a bandwidth of greater than or equal to an existing rate; regarding claim 19, comprising joining the new node to an existing node of the spanning tree and upon determining that the existing node has a bandwidth of

greater than or equal to an existing rate and regarding claim 23, wherein the new node is joined to an existing node of the spanning tree.

Hsu discloses the following features: regarding claim 8, comprising joining the new node to an existing node of the spanning tree (Fig. 7, process 700, see “provide admission control” recited in column 10 lines 10-13) and upon determining that the existing node has a bandwidth of greater than or equal to an existing rate (Fig. 7, process 700, see “determine the sum of the biased cost, step 720” recited in column 10 lines 13-21); regarding claim 19, comprising joining the new node to an existing node of the spanning tree (Fig. 7, process 700, see “provide admission control” recited in column 10 lines 10-13) and upon determining that the existing node has a bandwidth of greater than or equal to an existing rate (Fig. 7, process 700, see “determine the sum of the biased cost, step 720” recited in column 10 lines 13-21) and regarding claim 23, wherein the new node is joined to an existing node of the spanning tree (Fig. 7, process 700, see “provide admission control” recited in column 10 lines 10-13), upon determining that that the existing node has a bandwidth of greater than or equal to an existing rate (Fig. 7, process 700, see “determine the sum of the biased cost, step 720” recited in column 10 lines 13-21).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the system of McCanne with Haas et al. by using the features, as taught by Hsu, in order to provide joining the new node to an existing node of the spanning tree and upon determining that the existing node has a bandwidth of greater than or equal to an existing rate and wherein the new node is joined to an existing node

of the spanning tree. The motivation of using these functions is to enhance the system in a cost effective manner.

McCanne, Haas et al. and Hsu do not disclose the following features: regarding claim 7, further comprising joining a new node to the spanning tree; regarding claim 9, further comprising: determining a triangular improvement upon determining that no existing node has a bandwidth greater than or equal to the existing rate; joining the new node at an attachment point having a highest bandwidth among existing nodes of the spanning tree upon determining that the triangular improvement failed; and re-determining the spanning tree upon determining bandwidth less than or equal to a minimum threshold; regarding claim 18, further comprising joining a new node to the spanning tree; regarding claim 20, further comprising determining a triangular improvement upon determining that no existing node has a bandwidth greater than or equal to the existing rate; joining the new node at an attachment point having a highest bandwidth among existing nodes of the spanning tree upon determining that the triangular improvement failed; and re-determining the spanning tree upon determining bandwidth less than or equal to a minimum threshold and regarding claim 23, joining a new node to the spanning tree, determining a triangular improvement upon determining that no existing node has a bandwidth greater than or equal to the existing rate; joining the new node at an attachment point having a highest bandwidth among existing nodes of the spanning tree upon determining that the triangular improvement failed, and re-determining the spanning tree upon determining bandwidth less than or equal to a minimum threshold.

Grover et al. disclose a topological design of survivable mesh-transport network with the following features: regarding claim 7, further comprising joining a new node to the spanning tree (Fig. 1, flow diagram showing the basic steps of the invention, see "move it to join a node on the other side of the cut" recited in paragraph 0016 lines 5-9 in the background of the invention); regarding claim 9, further comprising determining a triangular improvement upon determining that no existing node has a bandwidth greater than or equal to the existing rate (Fig. 1, flow diagram showing the basic steps of the invention, see "by detecting flow saturated cuts of the graph, the branch exchange process to discover effective exchanges in fewer iteration" recited in paragraph 0016 lines 1-5 in the background of the invention) joining the new node at an attachment point having a highest bandwidth among existing nodes of the spanning tree upon determining that the triangular improvement failed (Fig. 1, flow diagram showing the basic steps of the invention, see "it takes a lightly loaded link from the one side of the saturated cuts and move it to join a node on the other side of the cut" recited in paragraph 0016 lines 5-9 in the background of the invention), and re-determining the spanning tree upon determining bandwidth less than or equal to a minimum threshold (Fig. 1, flow diagram showing the basic steps of the invention, see "can be efficiently identified with a minimum spanning tree algorithm for link utilizations" recited in paragraph 0016 lines 9-12 in the background of the invention), regarding claim 18, further comprising joining a new node to the spanning tree (Fig. 1, flow diagram showing the basic steps of the invention, see "move it to join a node on the other side of the cut" recited in paragraph 0016 lines 5-9 in the background of the invention);

regarding claim 20, further comprising determining a triangular improvement upon determining that no existing node has a bandwidth greater than or equal to the existing rate (Fig. 1, flow diagram showing the basic steps of the invention, see “by detecting flow saturated cuts of the graph, the branch exchange process to discover effective exchanges in fewer iteration” recited in paragraph 0016 lines 1-5 in the background of the invention); joining the new node at an attachment point having a highest bandwidth among existing nodes of the spanning tree upon determining that the triangular improvement failed (Fig. 1, flow diagram showing the basic steps of the invention, see “it takes a lightly loaded link from the one side of the saturated cuts and move it to join a node on the other side of the cut” recited in paragraph 0016 lines 5-9 in the background of the invention) and re-determining the spanning tree upon determining bandwidth less than or equal to a minimum threshold (Fig. 1, flow diagram showing the basic steps of the invention, see “can be efficiently identified with a minimum spanning tree algorithm for link utilizations” recited in paragraph 0016 lines 9-12 in the background of the invention) and regarding claim 23, joining a new node to the spanning tree, determining a triangular improvement upon determining that no existing node has a bandwidth greater than or equal to the existing rate (Fig. 1, flow diagram showing the basic steps of the invention, see “by detecting flow saturated cuts of the graph, the branch exchange process to discover effective exchanges in fewer iteration” recited in paragraph 0016 lines 1-5 in the background of the invention), joining the new node at an attachment point having a highest bandwidth among existing nodes of the spanning tree upon determining that the triangular improvement failed (Fig. 1, flow diagram showing

the basic steps of the invention, see “it takes a lightly loaded link from the one side of the saturated cuts and move it to join a node on the other side of the cut” recited in paragraph 0016 lines 5-9 in the background of the invention) and re-determining the spanning tree upon determining bandwidth less than or equal to a minimum threshold (Fig. 1, flow diagram showing the basic steps of the invention, see “can be efficiently identified with a minimum spanning tree algorithm for link utilizations” recited in paragraph 0016 lines 9-12 in the background of the invention).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the system of McCanne with Haas et al. and Hsu by using the features, as taught by Grover et al., in order to provide joining a new node to the spanning tree, determining a triangular improvement upon determining that no existing node has a bandwidth greater than or equal to the existing rate; joining the new node at an attachment point having a highest bandwidth among existing nodes of the spanning tree upon determining that the triangular improvement failed; and re-determining the spanning tree upon determining bandwidth less than or equal to a minimum threshold, joining a new node to the spanning tree, determining a triangular improvement upon determining that no existing node has a bandwidth greater than or equal to the existing rate; joining the new node at an attachment point having a highest bandwidth among existing nodes of the spanning tree upon determining that the triangular improvement failed, and re-determining the spanning tree upon determining bandwidth less than or equal to a minimum threshold. The motivation of using these functions is to enhance the system in a cost effective manner.

Response to Arguments

7. Applicant's arguments with respect to claims 1, 9, 12, 20 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SYED BOKHARI whose telephone number is (571)270-3115. The examiner can normally be reached on Monday through Friday 8:00-17:00 Hrs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang B. Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Syed Bokhari/

Examiner, Art Unit 2616

5/19/2008

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2616